

**WHAT IS CLAIMED IS:**

- 1           1.       An assembly for visualization and access within a body cavity comprising:  
2           a sleeve having a distal end, a proximal end, and a lumen therebetween;  
3           a scope having a shaft with a distal end and a proximal end, the shaft being slidably  
4           positionable in the lumen, a channel extending longitudinally through the shaft, and a lens in  
5           the channel near the distal end,  
6           a transparent bulb disposed at the distal end of the shaft outside of the channel and  
7           optically aligned with the lens.
- 1           2.       The assembly of claim 1 wherein the transparent bulb is mounted to the distal  
2           end of the shaft.
- 1           3.       The assembly of claim 1 wherein the transparent bulb is mounted to an elongate  
2           sheath having a proximal end, a distal end, and a lumen therebetween, the shaft being  
3           positionable in the lumen with the distal end of the shaft adjacent to the bulb.
- 1           4.       The assembly of claim 1 wherein the transparent bulb is substantially rigid.
- 1           5.       The assembly of claim 1 wherein the transparent bulb is made of a material  
2           selected from glass, acrylic, polystyrene, and polycarbonate.
- 1           6.       The assembly of claim 1 wherein the transparent bulb has a transverse cross-  
2           sectional area larger than the transverse cross-sectional area of the shaft.
- 1           7.       The assembly of claim 1 wherein the transparent bulb has a distal surface, the  
2           distal surface being convex.

1           8.     The assembly of claim 1 wherein sleeve has a length sufficient to reach an  
2 interior of a patient's heart from outside the patient's chest.

1           9.     The assembly of claim 8 wherein the sleeve has a length of at least about 15 cm.

1           10.    The assembly of claim 1 wherein the transparent bulb comprises an expandable  
2 member, the assembly further comprising an inflation lumen in communication with the  
3 expandable member for delivering an inflation fluid thereto.

1           11.    The assembly of claim 1 wherein the sleeve is substantially rigid.

1           12.    A contact scope for visualization within a body cavity comprising:  
2 an elongate sheath having a distal end, a proximal end, a lumen therebetween, and a  
3 transparent bulb mounted to the distal end aligned with the lumen; and  
4 a scope slidably positionable in the lumen, the scope having a shaft with a distal end, a  
5 proximal end and a channel therebetween, and a lens mounted in the channel near the distal end;  
6 wherein the distal end of the shaft may be positioned within the lumen adjacent to the  
7 transparent bulb to allow viewing through the lens and the bulb.

1           13.    The contact scope of claim 12 wherein the transparent bulb is substantially rigid.

1           14.    The contact scope of claim 12 wherein the transparent bulb is made of a material  
2 selected from glass, acrylic, polystyrene, and polycarbonate.

1           15.    The contact scope of claim 12 wherein the transparent bulb has a transverse  
2 cross-sectional area larger than the transverse cross-sectional area of the shaft.

1           16.    The contact scope of claim 12 wherein the transparent bulb has a distal surface,  
2 the distal surface being convex.

1           17.    The contact scope of claim 12 wherein the transparent bulb comprises an  
2   expandable member, the sheath further comprising an inflation lumen in communication with  
3   the expandable member for delivering an inflation fluid thereto.

1           18.    The contact scope of claim 12 further comprising a sleeve having an axial  
2   lumen, the sheath being removably positionable in the axial lumen.

1           19.    A repair system for repairing a septal defect in a patient's heart, the repair  
2   system comprising:  
3           a sleeve having a distal end, a proximal end, and a lumen therebetween;  
4           a scope having a shaft with a distal end and a proximal end, the shaft being slidably  
5   positionable in the lumen, a channel extending longitudinally through the shaft, and a lens in  
6   the channel near the distal end,  
7           a transparent bulb disposed at the distal end of the shaft optically aligned with the lens;  
8   and  
9           a septal defect closure device positionable through the lumen of the sleeve.

1           20.    The repair system of claim 19 wherein the septal defect closure device  
2   comprises a delivery shaft having a distal end, a proximal end, and a patch releasably held at  
3   the distal end, the patch having a deployed configuration for positioning across a septal defect  
4   and a collapsed configuration for positioning through the lumen in the sleeve.

1           21.    The repair system of claim 19 wherein the septal defect closure device is  
2   configured to apply a suture to the cardiac septum.

1           22.    The repair system of claim 19 wherein the transparent bulb is mounted to the  
2   distal end of the shaft.

1           23.    The repair system of claim 19 wherein the transparent bulb is mounted to an  
2 elongate sheath having a proximal end, a distal end, and a lumen therebetween, the shaft being  
3 positionable in the lumen with the distal end of the shaft adjacent to the bulb.

1           24.    The repair system of claim 19 wherein the transparent bulb is substantially rigid.

1           25.    The repair system of claim 19 wherein the transparent bulb comprises an  
2 expandable member, the assembly further comprising an inflation lumen in communication  
3 with the expandable member for delivering an inflation fluid thereto.

1           26.    The repair system of claim 19 wherein the transparent bulb has a transverse  
2 cross-sectional area larger than the transverse cross-sectional area of the shaft.

1           27.    The repair system of claim 19 wherein the transparent bulb has a distal surface,  
2 the distal surface being convex.

1           28.    The repair system of claim 19 wherein sleeve has a length sufficient to reach an  
2 interior of a patient's heart from outside the patient's chest.

1           29.    The repair system of claim 28 wherein the sleeve has a length of at least about  
2 15 cm.

1           30.    The repair system of claim 19 wherein the sleeve has an outer diameter of less  
2 than about 12 mm.

1           31.    The repair system of claim 19 wherein the sleeve is substantially rigid.

1           32.    The repair system of claim 19 further comprising an access cannula having a  
2   distal end positionable through a wall of the heart, a proximal end, and an access channel  
3   therebetween, the sleeve being slidably positionable through the access channel into the heart.

1           33.    The repair system of claim 32 wherein the access cannula has a flange on a  
2   distal end thereof for engaging an interior wall of the heart.

1           34.    The repairs system of claim 32 further comprising an obturator removably  
2   positionable in the access channel.

1           35.    The repair system of claim 34 wherein the obturator has a distal end configured  
2   to penetrate the wall of the heart.

1           36.    A method of locating an opening in a patient's heart, comprising:  
2   positioning a visualization scope through a sleeve;  
3   positioning a distal end of the visualization scope into the heart through a penetration in  
4   a wall thereof;  
5   viewing the opening through the visualization scope;  
6   sliding the sleeve into the opening; and  
7   removing the visualization scope from the sleeve.

1           37.    The method of claim 36 further comprising the steps of:  
2   positioning the visualization scope in a sheath outside the heart such that a distal end of  
3   the visualization scope is adjacent to a transparent bulb on a distal end of the sheath; and  
4   positioning the sheath in the heart through the sleeve;  
5   viewing the opening through the transparent bulb.

1           38.    The method of claim 36 further comprising:

2           positioning a repair device through the sleeve while the sleeve is positioned through the  
3 opening; and  
4           closing the opening with the repair device.

1           39.    The method of claim 38 wherein the repair device comprises a patch which is  
2 secured across the opening.

1           40.    The method of claim 36 wherein the visualization scope and the sleeve are  
2 positioned through an access cannula extending from outside the chest through the penetration  
3 in the wall of the heart.

1           41.    The method of claim 36 wherein the heart remains beating during each of said  
2 steps.

1           42.    The method of claim 36 wherein the opening comprises a septal defect.